

In re: Goretta, et al. (S.N. 09/924,571)
Amendment in Response to September 28, 2004 Official Action
Page 2 of 6

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

- 1-7 (Canceled)
8. (Currently Amended) A method for producing a construct by seamlessly joining solid objects made up of certain sized particles, the method comprising:
- a) supplying a joint compound having particle sizes smaller than the certain sized particles;
 - b) applying the joint compound to opposing surfaces of the objects to be joined together;
 - c) heating the joint to a heating temperature of between 1000 °C and 1350 °C; and
 - d) applying pressure to the solid objects so as to direct the opposing surfaces toward each other, wherein the joint compound is applied to a thickness that is at least five times the dimension of the largest particles contained in the joint compound, wherein superplastic deformation occurs between the objects and the joint compound and ~~The method as recited in claim 7~~ wherein the heating temperature is 0.5 to 0.7 the melting temperature of the lowest melting point constituent of the construct.
9. (Currently Amended) A method for producing a construct by seamlessly joining solid objects made up of certain sized particles, the method comprising:
- a) supplying a joint compound having particle sizes smaller than the certain sized particles;
 - b) applying the joint compound to opposing surfaces of the objects to be joined together;

In re: Goretta, et al. (S.N. 09/924,571)
Amendment in Response to September 28, 2004 Official Action
Page 3 of 6

- c) heating the joint to a heating temperature of between 1000 °C and 1350 °C; and
 - d) applying pressure to the solid objects so as to direct the opposing surfaces toward each other, wherein the joint compound is applied to a thickness that is at least five times the dimension of the largest particles contained in the joint compound, wherein superplastic deformation occurs between the objects and the joint compound and ~~The method as recited in claim 7~~ wherein the applied pressure and heating temperature are applied at an inverse relationship to each other.
10. (Canceled)
11. (Currently Amended) A method for producing a construct by seamlessly joining solid objects made up of certain sized particles, the method comprising:
- a) supplying solid objects ~~The method as recited in claim 7~~ wherein the solid objects are two-phase bodies and wherein the volume percent of one phase to the other phase varies from 2 to 98;
 - b) supplying a joint compound having particle sizes smaller than the certain sized particles;
 - c) applying the joint compound to opposing surfaces of the objects to be joined together;
 - d) heating the joint to a heating temperature of between 1000 °C and 1350 °C; and
 - e) applying pressure to the solid objects so as to direct the opposing surfaces toward each other, wherein the joint compound is applied to a thickness that is at least five times the dimension of the largest particles contained in the joint compound, wherein superplastic deformation occurs between the objects and the joint compound.

In re: Goretta, et al. (S.N. 09/924,571)
Amendment in Response to September 28, 2004 Official Action
Page 4 of 6

12-24 (Canceled)

25. (Currently Amended) The method as recited in claim 7 8 wherein the construct is heated to approximately 50-60 percent of the melting temperature of the lowest melting temperature constituent.

26. (Currently Amended) The method as recited in claim 7 8 wherein a constituent of the joint compound or the objects comprise 65 percent or more by volume of a phase that exhibits superplastic flow at the heating temperature, and wherein the largest particle of the phase is no more than 10 mm.

27. (Currently Amended) The method as recited in claim 7 8 wherein up to 35 volume percent of the joint compound contains fibers as long as 500 microns and 65 volume percent of the joint compound comprises a phase that exhibits superplastic flow at the heating temperature and wherein the largest particles of the phase are no more than 5 microns.

28. (Cancelled)

29. (Cancelled)

30. (Currently Amended) The method as recited in claim 28 8 whereby the temperature is 1350 °C.

31. (New) The method as recited in claim 9 wherein the construct is heated to approximately 50-60 percent of the melting temperature of the lowest melting temperature constituent.

32. (New) The method as recited in claim 9 wherein a constituent of the joint compound or the objects comprise 65 percent or more by volume of a phase that

In re: Goretta, et al. (S.N. 09/924,571)
Amendment in Response to September 28, 2004 Official Action
Page 5 of 6

exhibits superplastic flow at the heating temperature, and wherein the largest particle of the phase is no more than 10 mm.

33. (New) The method as recited in claim 9 wherein up to 35 volume percent of the joint compound contains fibers as long as 500 microns and 65 volume percent of the joint compound comprises a phase that exhibits superplastic flow at the heating temperature and wherein the largest particles of the phase are no more than 5 microns.